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Instructions for use

A New Genus of Subterranean Water-Mites from Kyoto¹⁾

By
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(With 3 Text-figures)

Recently through the courtesy of Mr. Shun-ichi Uéno of the Kyoto University some water-mite specimens, which were all collected by him from wells in Kyoto City, were forwarded to me for identification. On closer examination I found among them a peculiar species which belongs to the Hydrovolziidae. It resembles the genus *Hydrovolzia* but is clearly distinguished from the genus in the ventral shields, absence of eyes and its habitat. Based on these facts, I propose a new genus *Stygovolzia* which belongs to the subfamily Hydrovolziinae as described below.

Before going further, my hearty thanks are due to Mr. S. Uéno for his kind aid in supplying valuable specimens. It is my great pleasure to dedicate this paper to my teacher-professor, Dr. Tohru Uchida in memory of his 60th birthday.

Genus *Stygovolzia* n. g.

Body almost colourless and without eyes. Skin finely ridged. Dorsum similar to that of the *Hydrovolzia*. Epimera in four groups and the anterior ones attach to each other with their inner margins which are almost straight. Genital area surrounded by four plates: anterior genital plate which is not found in the *Hydrovolzia*, a pair of lateral genital plates and an anal plate. Legs with bristles on each segment, indicating no sexual dimorphism. Claws two in each leg and of non-furcated sickle-shape. Several specimens, including male, female and nymph, were captured in subterranean water in Kyoto City. The new genus seems to be a troglobite.

Type species: *Stygovolzia uenoi* Imamura n. g. et n. sp.

*Stygovolzia uenoi*²⁾ n. g. et n. sp.

Male (holotype, prep. 1423, Fig. 1): Body oval in outline, measuring 912μ long and 656μ wide in the widest portion. Skin rather hard and finely striated.

1) Contribution from the Biological Institute, Ibaraki University, No. 22.

Contribution No. 3 from the Spelaeological Society of Japan.

Aided by a grant from the Scientific Research Fund of the Ministry of Education.

2) The present species is named in honour of Mr. Shun-ichi Uéno who collected the specimens.

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Dorsum equipped with shields which resemble those of the *Hydrovolzia*. Anterior plate elliptical and measured $208\ \mu$ long and $472\ \mu$ wide. Anterior margin somewhat protruded but the posterior is straight. Main plate long reverse triangle in shape, ending in a obtuse tip, measured $529\ \mu$ long and $408\ \mu$ wide. Lateral plates in three pairs, anterior ones almost elliptical, measured $240\ \mu$ long and $112\ \mu$ wide, and the middle and posterior ones are both slender. Glandularia consists of four pairs, arranged along by the posterior lateral margins as shown in Fig. 1,c. Eyes absent. Maxillar organ conically tipped in its shoulders, measuring $240\ \mu$ long and $192\ \mu$ wide in the widest portion. Mandibles stout, $64\ \mu$ high and $230\ \mu$

Table 1

Segment	1	2	3	4	5
Extensor surface	20	148	116	160	58
Dorso-ventral height	44	64	56	38	16

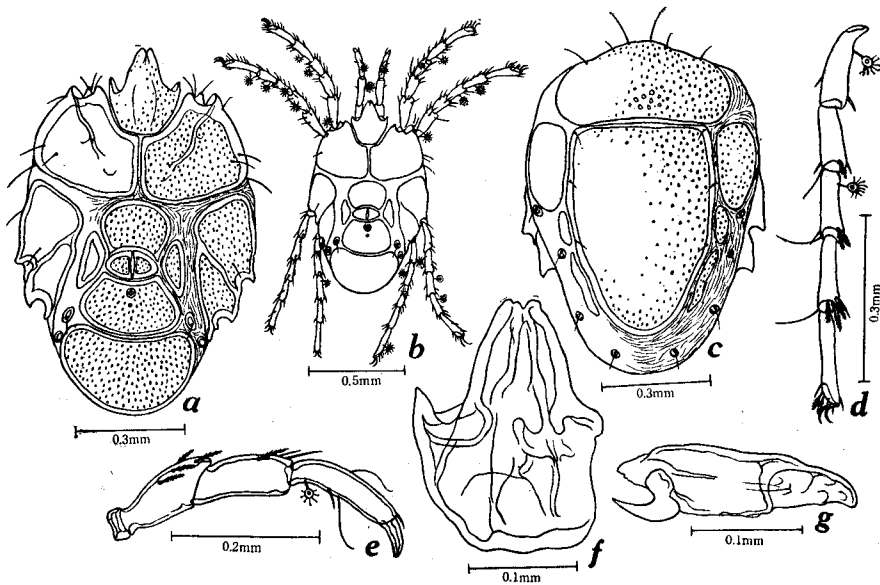


Fig. 1. *Stygovolzia uenoi* n. g. et n. sp., male. a, epimera and ventral shields. b, ventral view. c, dorsum. d, right IVth leg. e, right palp. f, maxillar organ, ventral view. g, mandible

long, including a claw in each. Palps rather slender, measuring segments as shown in Table 1, in μ . First segment of quadrate in the side view and without spines. Second segment almost straight in the flexor margin, but moderately curved in the extensor surface and equipped with four feathered bristles on it.

Third segment trapezoidal in the side view and with three bristles, one feathered, at the terminal portion of extensor surface. Fourth segment longest, with a hair and a spine curved as a claw, on the extensor surface, and a spine and hair in the middle portion of flexor surface. Fifth segment beak-shaped. Venter almost covered with epimera and shields. Epimera in four groups. Inner margins of the anterior groups almost straight and attach to each other. Posterior groups similar in shape to those of the genus *Hydrovolzia*. Genital area with two plates, almost triangular, measuring $72\ \mu$ long and $74\ \mu$ wide in each. Five shields are found except the epimera and genital plates. Genital field surrounded by four shields. Anterior genital plate, not found in the *Hydrovolzia*, measured $192\ \mu$ wide and $128\ \mu$ long in the middle portion. Lateral genital plates almost rhomboidal in contour. Anal plate, having a excretory pore at the middle anterior portion of it, measured $312\ \mu$ wide and $176\ \mu$ long in the middle portion. Post-anal plate large, kidney-shaped, and measured $384\ \mu$ wide and $208\ \mu$ long in the middle portion. Two pairs of glandularia are found between the fourth epimera and post-anal plate. Legs composed of six segments in each, without swimming hairs but with bristles or hair-like spines, feathered or non-feathered, in each segment. Claws at the terminal end of legs two in number and equally sickle-shaped, having no furcation. Fourth legs indicating no sexual dimorphism. Pedal segments measured as shown in Table 2. in μ . Body almost colourless and light yellow in preservative.

Table 2

Leg \ Segment	1	2	3	4	5	6
I	—	176	120	112	112	136
II	—	200	112	104	128	184
III	—	160	120	120	128	176
IV	—	152	120	120	128	152

Female (allotype, prep. 1425, Fig. 2): Body shape, colour, dorsal shields, mouth parts, epimera and legs all similar to those of male, but genital plates and ventral shields, except epimera, different in shape from those of male. Body $848\ \mu$ long and $624\ \mu$ wide. Dorsum: anterior plate $440\ \mu$ wide and $176\ \mu$ long in the middle portion; main plate $568\ \mu$ long and $384\ \mu$ wide in the widest portion; anterior lateral plates $240\ \mu$ long and $120\ \mu$ wide. Eyes absent. Maxillar organ $232\ \mu$ long and $184\ \mu$ wide. Mandibles $56\ \mu$ high and $228\ \mu$ long, including a claw in each. Palpal segments measured as shown in Table 3, in μ . Epimera and legs all resemble those of male. Genital plates larger than those of male, of half-moon in shape, measured $120\ \mu$ long and $64\ \mu$ wide. Each plate with three minute spines on the inner margin. Anterior genital plate relatively smaller

than that of male, measuring $200\ \mu$ wide and $98\ \mu$ long in the middle portion. Lateral genital plates larger than those of male, quadrate in shape, $160\ \mu$ long and $60\ \mu$ wide in the widest portion. Anal plate almost trapezoidal, measuring $248\ \mu$ wide and $152\ \mu$ long in the middle portion. Post-anal plate $184\ \mu$ long and $328\ \mu$ wide.

Table 3

Segment	1	2	3	4	5
Extensor surface	—	140	104	152	56
Dorso-ventral height	—	60	52	32	18

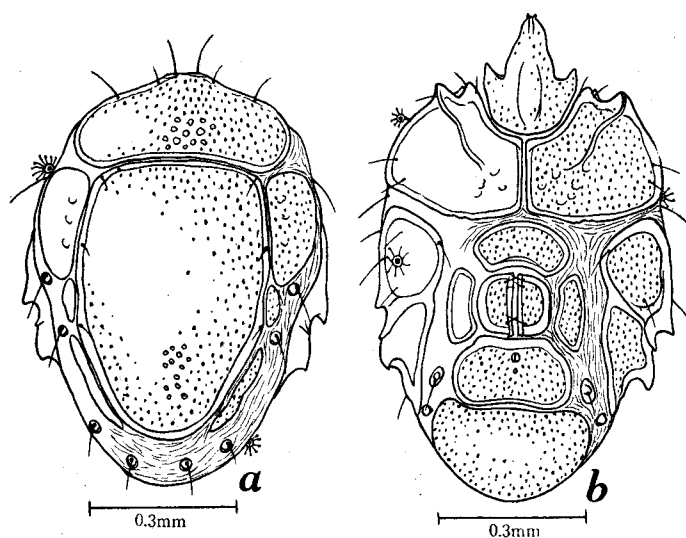


Fig. 2. *Stygovolzia uenoi* n. g. et n. sp., female. a, dorsum. b, venter.

Nymph (prep. 1424, Fig. 3): Body $600\ \mu$ long and $470\ \mu$ wide, relatively shorter in length as compared to width. Without eyes. Dorsum characteristic of having a circular posterior plate and without posterior lateral accessory plates. Eight pairs of glandularia located in the posterior lateral portions. Anterior plate $148\ \mu$ long and $328\ \mu$ wide. Main plate $280\ \mu$ long and $288\ \mu$ wide. Lateral plates $160\ \mu$ long and $80\ \mu$ wide. Mouth parts resemble those of imagines. Maxillar organ $160\ \mu$ long and $144\ \mu$ wide. Mandibles $48\ \mu$ high and $164\ \mu$ long, including a claw in each. Spines on palps fewer in number than those of imagines. Second segment with two feathered spines. Third segment equipped with two hairs on the extensor terminal portion. Fourth and fifth segment both similar to those of imagines. Segments measured as shown in Table 4, in μ . In venter,

epimera resemble almost those of imagines, except having straighter posterior margins of the second ones. Genital plates, anterior and lateral genital plates

Table 4

Segment	1	2	3	4	5
Extensor surface	—	108	84	116	44
Dorso-ventral height	—	48	40	28	14

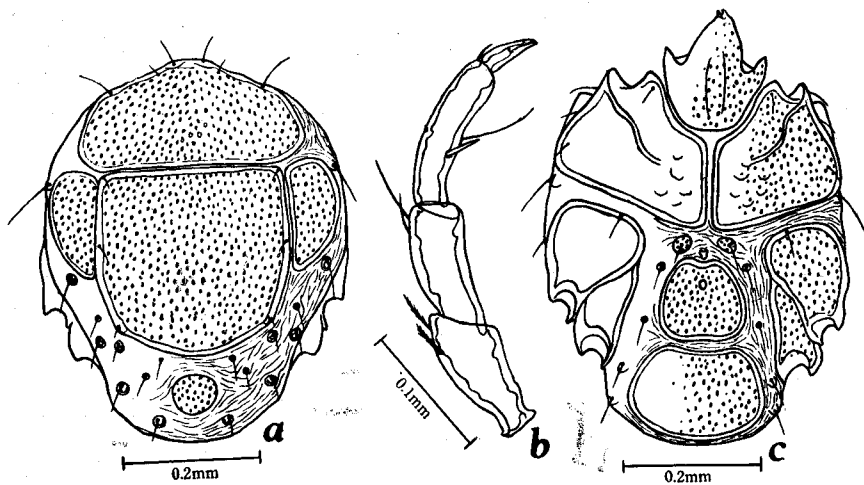


Fig. 3. *Stygovolzia uenoi* n. g. et n. sp., nymph. a, dorsum. b, right palp. c, venter.

all not found, but there are a pair of small circular plates, an anal and post-anal plates. Anal plate measured $108\ \mu$ long and $120\ \mu$ wide in the widest portion. Post-anal plate $200\ \mu$ wide and $144\ \mu$ long in the middle portion.

Locality. Each one male, female and nymph were captured by pumping-out method by Mr. S. Uéno in a driven well at Miyazaki-chô, Shimogamo, Kyoto City on Oct. 22, 1956.

Remarks. Many suctorian Protozoa are found attaching to the skin surface of body, mouth parts and legs as shown in the text-figures.